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5 *Pro se*

6 UNITED STATES DISTRICT COURT  
FOR THE EASTERN DISTRICT OF VIRGINIA

7 MATTHEW A. PEQUIGNOT  
8 1636 R Street, NW  
9 Third Floor  
Washington, D.C. 20009

10 Plaintiff,

11 v.

12 SOLO CUP COMPANY  
13 1700 Old Deerfield Rd.  
14 Highland Park, IL 60035

15 Defendant.  
16

Case No. 1:07cv897  
LMB/TCB

COMPLAINT FOR FALSE  
PATENT MARKING

17 Plaintiff MATTHEW A. PEQUIGNOT (hereinafter referred to as  
18 "PEQUIGNOT"), for his Complaint against Defendant SOLO CUP COMPANY  
19 (hereinafter referred to as "SOLO CUP"), alleges as follows:  
20

21 **NATURE OF THE CASE**

22  
23 1. This is an action for false patent marking under Title 35, Section 292,  
24 of the United States Code.

25 2. At least in part, it is alleged that SOLO CUP's marking of a plurality  
26 of its products (listed below) with expired patent numbers, and advertisement  
27 thereof, is a violation of 35 U.S.C. §292(a).  
28

COMPLAINT FOR FALSE PATENT MARKING

1           3.     PEQUIGNOT seeks an award of damages against SOLO CUP, one-  
2 half of which shall be paid to the United States pursuant to 35 U.S.C. §292(b).

3  
4                                   **THE PARTIES**

5           4.     PEQUIGNOT is an individual residing in Washington, D.C. with a  
6 correspondence address of 1636 R Street, NW, Third Floor, Washington, D.C.  
7 20009.

8           5.     Upon information and belief, SOLO CUP is a corporation organized  
9 and existing under the laws of Delaware, having its principal place of business at  
10 1700 Old Deerfield Rd., Highland Park, Illinois 60035.

11                                   **JURISDICTION, VENUE, AND STANDING**

12  
13           6.     This Court has jurisdiction of this action under 28 U.S.C. §§1331 and  
14 1338(a).

15           7.     Venue is proper in this District under 28 U.S.C. §§1391(c) and  
16 1395(a). At least in part, SOLO CUP's lids, the subject matter of this cause of  
17 action, are sold in various retail and food stores in this District.

18  
19           8.     PEQUIGNOT brings this action under 35 U.S.C. §292(b) which  
20 provides that any person may sue for civil monetary penalties for false patent  
21 marking.

22                                   **SOLO CUP'S EXPIRED PATENTS**

23  
24           9.     United States Patent No. Re. 28,797 ("the '797 patent"), entitled *Lid*,  
25 issued on May 4, 1976. Exhibit A.

26  
27           10.    SOLO CUP is the assignee of record of the '797 patent.  
28

1 11. U.S. Patent No. 4,589,569 ("the '569 patent"), entitled *Lid for*  
2 *Drinking Cup*, issued on May 20, 1986. Exhibit B.

3  
4 12. SOLO CUP is the assignee of record of the '569 patent.

5 13. The '797 patent expired on June 8, 1988 and, upon expiration, the  
6 information contained therein, including all technical descriptions, forever,  
7 irrevocably, entered the public domain.

8  
9 14. The '569 patent expired on October 24, 2003 and, upon expiration, the  
10 information contained therein, including all technical descriptions, forever,  
11 irrevocably, entered the public domain.

12  
13 **SOLO CUP'S MARKED LIDS**

14 15. Upon information and belief, SOLO CUP manufactures products for  
15 sale to distributors as well as to retailers, including restaurants, and the general  
16 consuming public.

17  
18 16. Among the products sold by SOLO CUP are cup lids, such as those  
19 employed on hot and cold drink cups such as, for example, those utilized by the  
20 retail coffee chain Starbucks<sup>TM</sup>. Additionally, SOLO CUP sells other lid types  
21 such as, for example, condiment cup lids. Upon information and belief, in addition  
22 to supplying such lids to food or drink store chains, SOLO CUP sells or supplies  
23 lids to distributors (e.g., restaurant supply-type stores) as well as to retail stores for  
24 sale to the general consuming public (e.g., party supply stores or food market  
25 stores).

26 17. Upon information and belief, SOLO CUP manufactures and sells lid  
27 products identified by stock numbers 600TS 0090, 605TP, 624TS, 626TP 0090,  
28

1 626TS 0090, 640TP 0090, 640TS 0090, 662TP 0090, 662TS 0090, 668TS, 695TP,  
2 695TS, D668S, M600P 0090, M600S 0090, M640S 0090, PL2, PL4 0090, and  
3 PL4TS 0090, and, when manufacturing such lids (or causing them to be  
4 manufactured), imprints on such lids (or causes to be imprinted) certain markings  
5 which identify the '797 patent (either in full or by abbreviation thereof).

6  
7 18. Upon information and belief, SOLO CUP manufactures and sells lid  
8 products identified by stock numbers T316B 0001, TL31B, TL31R, TL38B, and  
9 TL38R 0003, and, when manufacturing such lids (or causing them to be  
10 manufactured), imprints on such lids (or causes to be imprinted) certain markings  
11 which identify the '569 patent (either in full or by abbreviation thereof).

12 19. Upon information and belief, the SOLO CUP products identified in  
13 paragraphs 17 and 18 above are advertised on the internet (i.e., the "world wide  
14 web") both on SOLO CUP's website and on independent retailers' websites, and in  
15 such advertisements, images of the subject lids are employed which display the  
16 '797 patent number or the '569 patent number (either in full or by abbreviation).

17  
18 20. Because the SOLO CUP products, manufactured and sold as  
19 described in paragraphs 17 and 18 above, or as advertised as described in  
20 paragraph 19 above, contain or display markings which identify patent numbers,  
21 persons who view such markings are likely to believe such products are patented.

### 22 CAUSE OF ACTION

23  
24 21. PEQUIGNOT repeats, realleges, and incorporates by reference each  
25 and every paragraph above as if set forth fully herein.

1       22. All monopoly rights in an expired patent have terminated and the '797  
2 patent and the '569 patent, therefore, no longer carry with them any right to  
3 exclude.

4       23. SOLO CUP's products identified by stock numbers 600TS 0090,  
5 605TP, 624TS, 626TP 0090, 626TS 0090, 640TP 0090, 640TS 0090, 662TP 0090,  
6 662TS 0090, 668TS, 695TP, 695TS, D668S, M600P 0090, M600S 0090, M640S  
7 0090, PL2, PL4 0090, and PL4TS 0090, are "unpatented" or not currently patented  
8 by the '797 patent because the '797 patent is expired.  
9

10       24. SOLO CUP's products identified by stock numbers T316B 0001,  
11 TL31B, TL31R, TL38B, and TL38R 0003 are "unpatented" or not currently  
12 patented by the '569 patent because the '569 patent is expired.  
13

14       25. Upon information and belief, every original United States patent, in  
15 the form it is issued to a patentee (or the patentee's representative) by the United  
16 States Patent and Trademark Office, includes a printed recitation of its term or  
17 duration in years by which the date of expiration of the patent is known.

18       26. Upon information and belief, because the '797 patent includes a  
19 recitation of its duration or term in years, in the form as originally issued to SOLO  
20 CUP (or its representative) by the United States Patent and Trademark Office,  
21 SOLO CUP, itself or by its representatives, actually, or at least constructively,  
22 knows, or should have known, that the '797 patent is expired and has been expired  
23 for more than 19 years.  
24

25       27. Upon information and belief, because the '569 patent includes a  
26 recitation of its duration or term in years, in the form as originally issued to SOLO  
27 CUP (or its representative) by the United States Patent and Trademark Office,  
28 SOLO CUP, itself or by its representatives, actually, or at least constructively,

1 knows, or should have known, that the '569 patent is expired and has been expired  
2 for almost four years.

3  
4 28. Upon information and belief, SOLO CUP is a sophisticated company  
5 which has many decades of experience with applying for, obtaining, and litigating  
6 patents, and knows (itself or by its representatives), at least constructively, that  
7 patents expire and do not have an indefinite duration.

8 29. Upon information and belief, at least as a result of SOLO CUP's  
9 experience in patent litigation, SOLO CUP actually knows (itself or by its  
10 representatives), or at least constructively knows (itself or by its representatives),  
11 that a patent expires and, upon expiration, retains no enforceable right to exclude.

12  
13 30. At least for the reasons set forth herein, and/or for other reasons which  
14 will be later evidenced, SOLO CUP has, on information and belief, "falsely  
15 marked" its products, with the intent to deceive the public, in violation of 35  
16 U.S.C. §292.

### 17 DAMAGES

18  
19 31. Every person in the United States is a potential entrepreneur with an  
20 absolute legal right to commercialize the articles described in the '797 and '569  
21 patents. Moreover, every person in the United States is a potential competitor of  
22 SOLO CUP with respect to the above identified lid products marked with expired  
23 patents.

24  
25 32. Every company in the United States has an absolute legal right to  
26 commercialize the articles described in the '797 and '569 patents. Moreover, every  
27 company in the United States is a potential competitor of SOLO CUP with respect  
28 to the above identified lid products marked with expired patents.

1        33. Each individual lid product identified above, or advertisement thereof,  
2 because it is marked with or displays the '797 or '569 patent number (or  
3 abbreviation thereof), not identified as expired, is likely to, or at least has the  
4 potential to, have a deterrent effect which discourages or dissuades each person or  
5 company (itself or by its representatives) which views it from commercializing a  
6 competing lid product even though every person or company in the United States  
7 has an absolute legal right to compete with SOLO CUP in commercializing such  
8 lids.

9  
10        34. Upon information and belief, SOLO CUP's marking of lid products  
11 with expired patents and/or advertising thereof, as described above and/or as will  
12 be further later evidenced, has quelled competition with respect to the identified lid  
13 products to an immeasurable extent thereby causing harm to the United States in an  
14 amount which cannot be readily determined.

15        35. Upon information and believe, for at least the reasons set forth herein,  
16 SOLO CUP has wrongfully and illegally advertised patent monopolies which it  
17 does not possess and, as a result, has benefited by increasing, or at least  
18 maintaining, its considerable market power with respect to the herein described lid  
19 products in the market place.

20  
21        36. For at least the reasons provided herein, and/or for other reasons  
22 which will be later evidenced, each individual lid and/or individual advertisement  
23 which displays or contains the "mark" of an expired patent (including any  
24 abbreviation thereof) likely, or at least potentially, contributes to the public harm.  
25 Therefore, each individual lid and/or each advertisement containing or displaying  
26 an expired patent number (or abbreviation thereof) imprinted thereon or in  
27 association therewith, as described herein and/or as will be later identified, should  
28 be construed as a separate "offense" pursuant to 35 U.S.C. §292(a).

1 **PRAYER FOR RELIEF**

2 WHEREFORE, PEQUIGNOT requests this Court, pursuant to 35 U.S.C.  
3 §292, to:  
4

5 A. Enter judgment against SOLO CUP and in favor of PEQUIGNOT for  
6 the violations alleged in this Complaint;  
7

8 B. Order SOLO CUP to pay a civil monetary fine of \$500 per false  
9 marking "offense", or an alternative amount as determined by the Court, one-half  
10 of which shall be paid to the United States.


11 C. Grant PEQUIGNOT such other and further relief as it may deem just  
12 and equitable.  
13

14 **JURY DEMAND**

15 Pursuant to Federal Rule of Civil Procedure 38(b), PEQUIGNOT hereby  
16 demands a trial by jury on all issues so triable.  
17

18 Respectfully submitted,  
19

20 Dated: August 30, 2007

21   
22 Matthew A. Pequignot  
23 Pro se  
24  
25  
26  
27  
28

# EXHIBIT A

**United States Patent** [19]**Brewer**

[11] E

**Re. 28,797**[45] **Reissued May 4, 1976**

- [54] **LID**  
 [75] **Inventor:** Clarence T. Brewer, Oak Park, Ill.  
 [73] **Assignee:** Solo Cup Company, Urbana, Ill.  
 [22] **Filed:** July 30, 1975  
 [21] **Appl. No.:** 600,413

**Related U.S. Patent Documents****Reissue of:**

- [64] **Patent No.:** 3,583,596  
**Issued:** June 8, 1971  
**Appl. No.:** 843,671  
**Filed:** July 22, 1969

- [52] **U.S. Cl.:** 220/306; 206/508  
 [51] **Int. Cl.:** B65D 41/16; B65D 41/18  
 [58] **Field of Search:** 220/306, 355, 374; 229/43, 1.5 B; 150/5; 206/508

**[56] References Cited****UNITED STATES PATENTS**

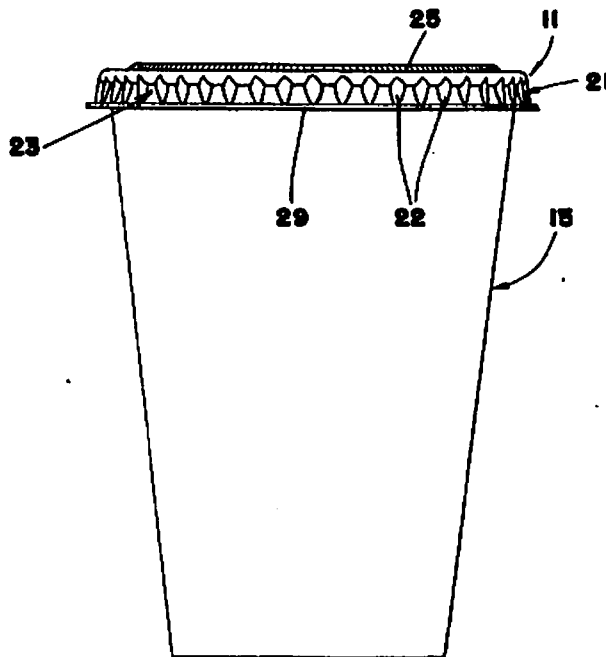
- |           |         |           |         |
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| 2,922,563 | 1/1960  | Aldington | 229/43  |
| 3,193,130 | 7/1965  | Miller    | 220/374 |
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*Primary Examiner*—George T. Hall  
*Attorney, Agent, or Firm*—Fitch, Even, Tabin & Luedeka

**[57] ABSTRACT**

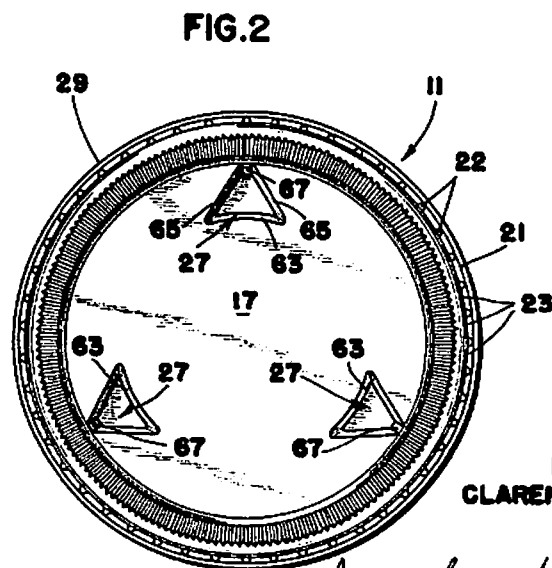
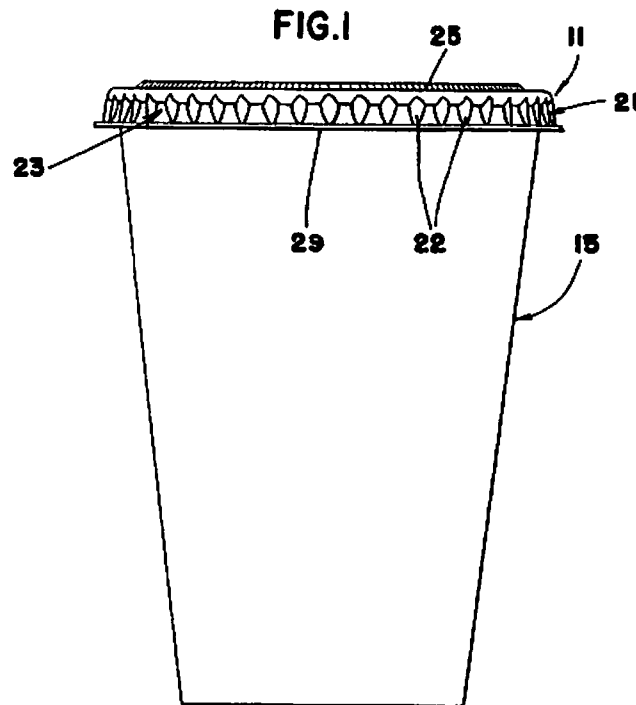
A coverall lid or closure for gripping and sealing engagement with the bead of a cuplike container. The lid includes a central panel which is connected to a circumferential cavity by means of a corrugated ring. The cavity is adapted to receive the bead of the container and abut the bead in sealed engagement. A conical skirt extends downward and outward from the lower edge of the cavity. The upper portion of the skirt and the lower portion of the cavity form a waist and this waist is interrupted by a series of circumferentially spaced flutes. The portion of the skirt between the flutes act as lands, each land having a decreasing circumferential extent from a lower portion to an inner portion thereof to facilitate flexing of the lands radially outward when engaged by the container bead. The lower portion of the cavity is moveable into position beneath the bead to grip the latter when the lid is fitted on the container.

**19 Claims, 5 Drawing Figures**

Reissued May 4, 1976

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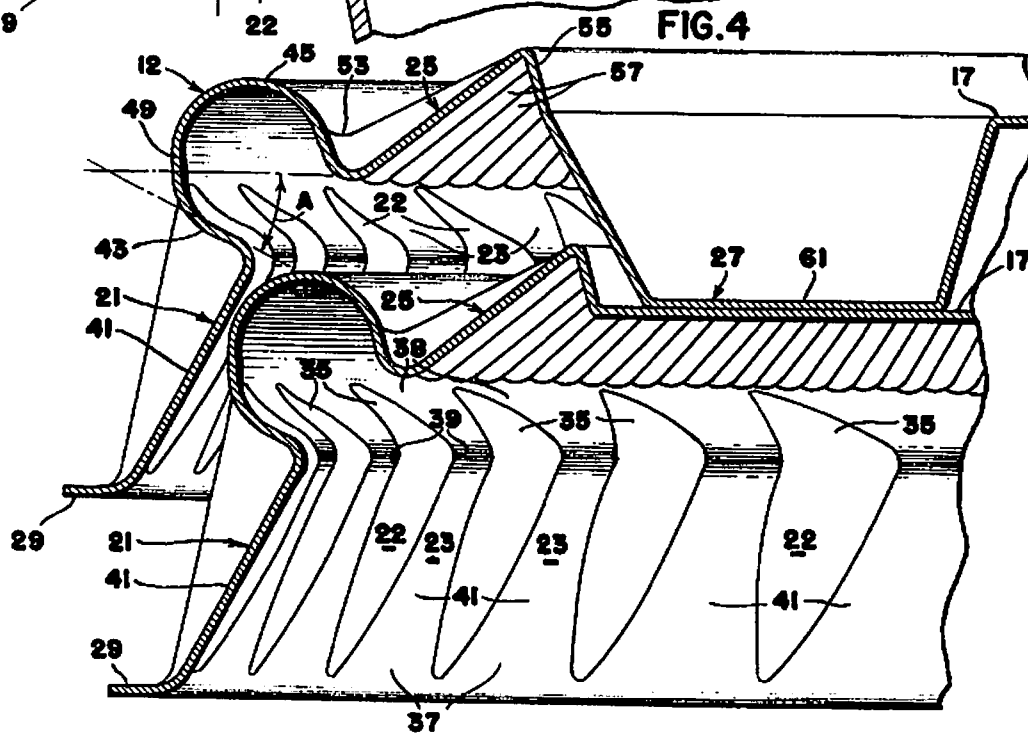
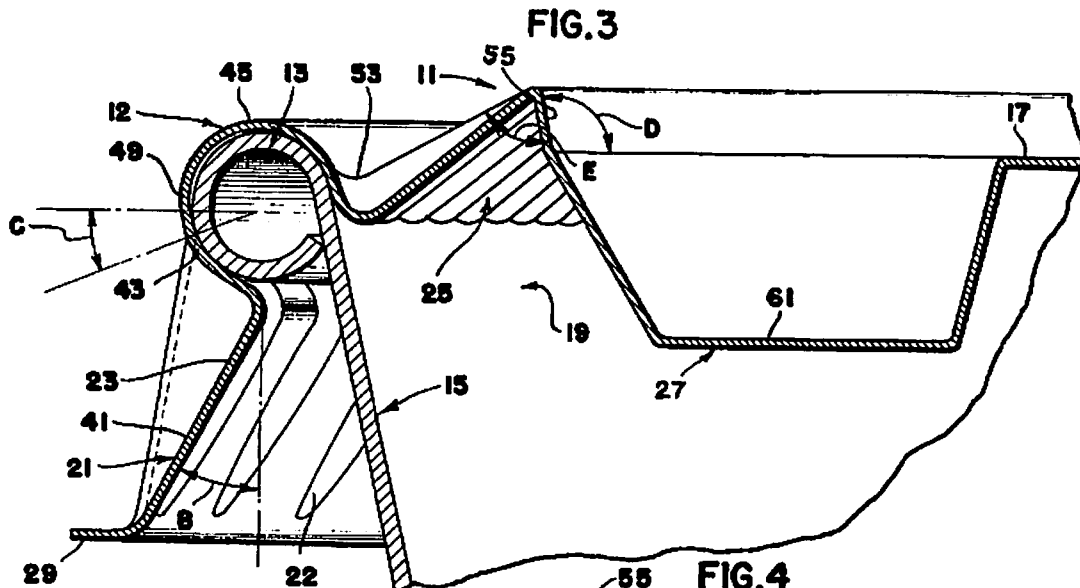
INVENTOR  
CLARENCE T. BREWER

*Anderson, Lusdecka, Fitch, Even & Taber*  
**ATTYS.**

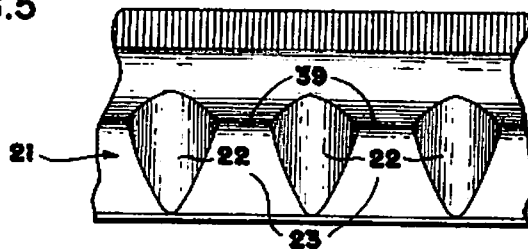
Reissued May 4, 1976

Sheet 2 of 2

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**FIG. 5**



INVENTOR  
CLARENCE T. BREWER

*Anderson, Lucdeka, Fitch, Eron, & Tabim*  
ATTYS.

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1

## LID

Matter enclosed in heavy brackets [ ] appears in the original patent but forms no part of this reissue specification; matter printed in italics indicates the additions made by reissue.

This invention relates to lids for cuplike containers and more particularly to lids of the single end use, disposable type for cuplike containers having a curled top edge or head.

Cuplike containers, having their top edges curled outwardly, downwardly and back under to form curled rims or beads, are commonly used to package foods, both solid and liquid, especially for carryout and end-point serving. Such containers are generally of the tapered or conical nesting type. The containers may be manufactured from sheet paper, treated or saturated with wax or a combination of wax and plastic, or from sheet paper laminated to thin plastic which serves as the interior of the container. Alternately, the cuplike containers may be post-treated with a coating, or a saturated coating, of wax or of a combination of wax and plastic. Containers of the above-described type may also be manufactured from sheet plastic by the thermovacuum-pressure forming process. In both the paper and plastic manufacturing processes, it is common practice to form the body of the container in one operation and the head in another operation, with both operations being automatically and progressively performed in one machine.

Variations in material characteristics, in sheet thickness and in manufacturing tools and processes cause dimensional tolerances in the container mouth diameter and the size or thickness of the head that are difficult to economically control below a certain minimum. There are roundness irregularities in the circumference of the container and there are also variations in the uniformity of the bead size around the top edge of the container. Also, the bead is not exactly round; it is normally either round or egg-shaped with the top edge having the smaller curvature. The bead in containers made of sheet paper has a slightly enlarged portion resulting from the side seam of such containers.

The lid for such a container, in order to fit snugly on the container and be reasonably leaktight, should compensate for these nonuniformities or irregularities in the bead and container mouth and the variations between containers. Of course, the lid should be easy to apply to, or remove from the container. Other desirable features which should be provided in the lid are: (1) The lid should have sufficient retention on the container so that when two or more full containers with attached lids are placed in a bag or package in juxtaposition with the edge of the lid of one container overhanging one or more other lids, the weight of that one container does not peel or rake off the lid; (2) When the container with the attached lid is held or lifted by gripping opposite sides of the skirt of the lid with the thumb and fingers, the retention of the lid on the container should be increased; (3) The skirt of the lid should be of sufficient length to provide sanitary protection for the lip area when lifting or holding the container with the attached lid in the above-described manner; (4) For ease of manufacture, the lid should be of such a design that it is easy to form by a thermovacuum-pressure forming process and is easy to strip from the mold.

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um-pressure forming process and is easy to strip from the mold.

Stacking of the lid is another important consideration, particularly where the lids are picked up, conveyed or transported to packaging for shipment or where the lids are dispensed to end use. The lids should nest freely, one with the other, and should nest uniformly laterally so as to form a very rigid column that can be compressively picked up or conveyed by the ends of the stack. The lids should maintain this uniform stack in a shipping carton and be capable of separation from nesting without resistance for dispensing to end use.

An object of the present invention is to provide a lid which incorporates one or more of the above desirable features.

Other objects and advantages of the invention will become apparent from the detailed description taken in connection with the accompanying drawings in which:

FIG. 1 is a perspective view of a container having an attached lid embodying the features of the invention;

FIG. 2 is a top view of the lid of FIG. 1;

FIG. 3 is an enlarged fragmentary, cross-sectional view of a lid on a container;

FIG. 4 is an enlarged fragmentary, cross-sectional view of several lids in a stack; and

FIG. 5 is an enlarged fragmentary view of flutes and lands on the lid.

As shown in the drawings, a lid 11 is provided having a circumferentially extending cavity 12 (as best seen in FIG. 3) for releasable sealing engagement with a bead 13 of a cuplike container 15 which may be either made by vacuum forming sheet plastic or made from sheet paper, as previously described. The lid 11 is formed with a central disclike panel 17 adapted to extend substantially across the open mouth 19 of the container when the lid is telescoped on the container. The lid also includes a conical lid skirt 21 which extends downward from the lower edge of the cavity 12. The lower portion of the cavity 12 and the upper portion of the skirt 21 form a waist and this waist is interrupted by a series of circumferentially spaced flutes 22. In telescoping the lid 11 on the container 15, the portions 23 of the skirt between the flutes 22 act as lands 23 which are cammed laterally outward by the bead 13 of the container thereby expanding the waist to permit it to pass over the container head 13. A corrugated ring 25 is disposed between the cavity 12 and the central panel 17, for a purpose described hereinafter. The lid 11 is provided with stacking lugs 27 projecting downwardly from the central panel to rest on the top of the central panel of a lid immediately beneath it, as best seen in FIG. 4.

Referring now in greater detail to the embodiment shown in the drawings, the lid 11 is preferably designed so that it is easily manufactured from a plastic sheet by a thermovacuum-pressure forming process and is easily stripped from its mold. For purposes of description, the lid 11 is described as it would be viewed from the container or its underside. The lid 11 includes the conical skirt 21 which, as illustrated, flares generally downward and outward from the lower portion of the cavity 12 to a maximum diameter at its lower free edge. Along the lower edge of the skirt 21 is an outward extending and substantially horizontal flange 29 which may be employed as a surface to be pushed for detaching the lid 11 from the container 15. This flange, which is neces-

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sary for presently available trimming operations, should be as narrow as possible to minimize the possibility of the lid being raked off by adjacent containers, as previously described.

When the lid 11 is initially placed on the container, it is normally skewed with one side of the bead 13 seated fully in the cavity 12. The inner diameter of the lower free edge of the skirt 21 is made of sufficient diameter to cover the maximum tolerance outside diameter of the container bead 13 when the lid 11 is in the skewed position on the container. The skirt 21 is made of sufficient length to provide a low-pressure angle as the skirt slides over the bead 13. When the lid 11 is attached to the container 15, the skirt 21 provides sanitary protection for the lip area about the container mouth.

The upper portion of the skirt 21 and the lower portion of the cavity 12 form a waist. The waist is interrupted by a series of circumferentially spaced-apart flutes 22. The illustrated flutes 22 are radius grooves which is the preferred shape but, in certain applications, they also may be narrow slots. These flutes 22 provide telescopic rigidity to the skirt 21 and the lower portion of the cavity 12, thereby avoiding an inward bellows action when the lid is applied to the container.

The relatively flat portions 23 of the skirt 21 between the flutes act as lands, which are cammed outwardly by the bead 13, when the lid is pressed downwardly on the container 15, without digging in or marring the bead. To this end the lands 23 have sufficient conical strength structurally to cause the flutes to expand circumferentially or diametrically, that is, the width of the lands 23 vary between the lower and upper portions thereof. Each land 23 has a wider circumferentially extending lower portion 37 (FIG. 4) at the lower free end of the skirt 21 than at an upper or innermost portion 39.

The lands 23 are connected to lower rounded portions 43 of the rim-receiving cavity 12. The lower rounded portions 43 of the cavity 12 form hooks or latches that snap over the bead 13 and apply a slight tightening down camming action to hold the lid against inadvertent separation from the container 15. The lower rounded portions 43 extend inward approximately to one-half the width of the cavity 12. For the purpose of facilitating the camming and snapping action of the hooks 43 on the container bead 13, the lower rounded portions 43 are formed with a downwardly curved surface disposed at an angle of about 43° to the horizontal as exemplified by the angle A in FIG. 4. With a smaller angle it would be difficult to remove the lid from the mold.

The waist is expanded by the narrower upper portions 39 of the lands 23 being cammed laterally outwardly. This camming action causes the walls forming the adjacent flutes 22 to be distorted and the rounded portions 43 to roll outward. The increased intermediate widths of the flutes 22 and the nonparallelism of the land-defining walls also aid in the flexing to accommodate the bead 13. The camming action is facilitated by providing the land 23 at a small angle relative to the vertical (angle B in FIG. 3) preferably at an angle not greater than about 31°.

The pivoting of the land 23 and the outward rolling of the rounded portions 43 to expand the waist are further enhanced by having the tops of the flutes 22 joined to the rim-receiving cavity 12 as close as possible to a point of tangency with the inner surface of the cavity 12, as best seen in FIG. 3. If the tops of the flutes 22 were made tangential to the cavity 12, the flutes 22

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would extend further upwardly to the center of the cavity 12 and thereby provide passageways between the rim and cavity wall through which liquid might leak. The preferred angle for the point of connection of the flutes 22 to the cavity 12 is at an angle of about 15°-20° from a horizontal plane, as illustrated by the angle C in FIG. 3.

As previously explained, beads 13 are formed by a rolling of the material which results in noncircular cross sections and sometimes results in flats, bulges or other variable cross-sectional dimensions in the beads. In seamed containers, the double thickness of the material at the seam causes an enlargement or bulge. It has been found that containers may have a tolerance in the height of the bead of 0.025 inches. To seal with beads 13 having such variations, the cavity 12 is formed with a vertical dimension, i.e., a height, to receive the maximum tolerance dimension of a container bead. Additionally, an upper rounded wall 45 (FIG. 3) of the cavity 12 is blended into a flat vertically disposed outer wall 49 with the result that the cavity 12 is elongated in the vertical direction. The inner diameter of the vertical wall 49 is selected to be slightly less than the minimum tolerance diameter of the bead 13 or that of the minimum tolerance diameter of the bead with interference. The flatness of the cavity 12 provided by the vertical wall permits the cavity to bulge where needed.

The upper arcuate wall 45 is joined at its inner end with an upwardly facing curved surface 53 at the lower edge of the corrugated ring 25. The corrugated ring 25 extends inward and upward from its lower edge and includes a plurality of corrugations 57 each of which has a substantially uniform circumferential extent and decreases in height. The sides of the corrugations 57 are radially disposed, the corrugations thereby being wider at the outer ends than the inner ends.

The corrugated ring allows the upper wall 45 of the cavity to roll upwardly and outwardly to accommodate variations in the bead diameter. Also, the upwardly curved surface 53 readily deforms in a localized area as the corrugated ring 25 spreads circumferentially and flexes upwardly whereby the lid may fully seat and grip despite bulges or other such enlargements. The corrugated ring 25 also allows the lid to be easily removed from the container without any abrupt or jarring action by placing two or more fingers on top of the lid, near the edge of the panel 17, and the thumb under the lower edge of the skirt 21 and gently squeezing between the thumb and fingers simultaneously with a prying action.

The corrugated ring 25 is connected to the center panel 17 by means of a conical-shaped collar or tapered cylinder 55. The angle between the face of the center panel 17 and the collar (angle D in FIG. 3) is made greater than 90° and the angle between the collar 55 and the upper surface of the corrugated ring 25 (angle E in FIG. 3) is made approximately 90° so that the lid does not permanently buckle. Alternately, the angles may be interchanged (i.e., angle D may be made 90° and angle E may be made greater than 90°. Also, this collar 55 facilitates the rolling of the cavity 12.

The preferred manner of stacking is by means of three spaced stacking lugs 27, each in the shape of an oblique frustum of a triangular pyramid with the edges of faces flattened or rounded. The lugs are integrally formed in and project downwardly from the top panel 17 to a position in horizontal plane beneath the plane of lower portions 43 of the cavity 21. More particu-

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larly, the bottom walls 61 on the stacking lugs 27 abut the central panel 17 of a lid immediately below to space the skirt 21 from engaging and prevent its moving into a wedging engagement with the outer surface of the lid cavity 12. As illustrated in FIG. 2, the stacking lugs are each positioned so that one corner 67 thereof is directed outwardly so that, when the plastic material from which the lid is thermoformed shrinks upon cooling, the lid is easily stripped from the mold.

The preferred equipment for forming a series of lids simultaneously from a sheet of plastic has the stacking lugs angularly spaced at different angles in the various lid forming dies so that the lids when formed have the stacking lugs in a series of nonmatchable positions. Thus, each group of lids formed from a single sheet may be stacked immediately without having the bottom walls 61 of one lid aligned and projecting into the openings of the stacking lugs in the lid next below.

From the foregoing, it will be seen that the lid may be manufactured by thermoforming or pressured formed from a sheet of plastic and provided with sufficient flexibility at the depending skirt to fit containers having bead diameters which vary substantially over a relatively wide range of tolerances. The lids are particularly suited for accommodating bulges at the seams or other nonuniform cross sections in roller beads. The lids may be readily stacked yet are prevented from wedging into engagement with one another which would prevent the easy release of one lid from another.

While a preferred embodiment has been shown and described, it will be understood that there is no intent to limit the invention by such disclosure but, rather, it is intended to cover all modifications and alternate constructions falling within the spirit and scope of the invention as defined in the appended claims.

What I claim is:

1. A lid for gripping and sealing engagement with a container having a bead about an upper edge thereof, said lid comprising a central panel, means defining an inwardly opening, circumferentially extending cavity on said lid at a position radially outwardly of said central panel to receive said bead and to abut said bead in sealed engagement, means connecting said cavity to the outer edge of said panel, a conical skirt extending downward and outward from the lower edge of said cavity defining means and terminating a free end having a diameter larger than the diameter of said bead, whereby the upper portion of said skirt and the lower portion of said cavity defining means form a waist, and a series of circumferentially spaced flutes, interrupting said waist, the portions of said skirt between said flutes acting as lands when the lid is telescoped on a container, each of said lands having a decreasing circumferential extent from a lower portion to an inner portion thereof to facilitate flexing of said land radially outward when cammed by the container bead, the lower portion of said cavity defining means being moveable into position beneath said bead to grip the latter when the lid is fitted on said container.

2. A lid in accordance with claim 1 in which said cavity-defining means is elongated in the vertical direction to accommodate bulges in the container bead.

3. A lid in accordance with claim 1 in which said connecting means includes a flexible annular corrugated ring disposed between said central panel and said cavity-defining means, each of the corrugations in said ring being tapered on height with the higher ends outermost.

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4. A lid in accordance with claim 3 in which said flutes project upwardly into said cavity-defining means to a point immediately below a tangential line to said cavity-defining means.

5. A lid in accordance with claim 4 in which the waist extends inward to about one-half of the width of said cavity and the skirt extends downward at an angle of less than about 31° to the vertical plane.

6. A lid in accordance with claim 1 in which stacking lugs in the shape of oblique frustums of triangular pyramids depend from said central panel and into the area defined by said skirt for resting on another central panel of another lid when stacked therewith, said lugs having one corner thereof directed outward.

7. A lid in accordance with claim 5 in which said connecting means includes a tapered collar connecting the inner end of the corrugations to the central panel.

8. A lid for gripping and sealing engagement with an open mouth container having an annular bead about the upper edge thereof, said lid comprising a central panel extending substantially across the mouth of the container, a conical-shaped collar joined to outer edge of said panel, a ring having radially extending corrugations joined to and projecting outward and downward from said collar, said corrugations being tapered in height with the higher ends being outermost, a circumferentially extending cavity defining means joined to said ring and elongated in the vertical direction to receive said container bead and to have a sealed engagement therewith, a conical skirt depending from said cavity defining means and projecting downwardly and outwardly to a free end having a diameter larger than that of said container bead, whereby the lower portion of said cavity-defining means and the upper portion of said skirt forms a waist and a series of flutes interrupting said waist, the portions of said skirt between said flutes acting as lands when the lid is telescoped on the container, each of said lands having a decreasing circumferential dimension in the upward direction and flexing outward about the lower and wider portion of said land to permit telescoping of said lid on said container bead, said lower portion of said cavity-defining means flexing inward and beneath said bead when said lid is telescoped on said container to grip therewith and hold said lid in sealed engagement with said container bead.

9. A lid in accordance with claim 8 in which stacking lugs in the shape of oblique frustums of triangular pyramids depend from said central panel into the area defined by said skirt for resting on another central panel of another lid when stacked therewith, said lugs having one corner thereof directed outward.

10. A lid in accordance with claim 8 in which the waist extends inward about one-half the radial width of said cavity.

11. A lid for gripping and sealing engagement with a container having a bead about an upper edge thereof, said lid comprising a central panel, means defining a circumferentially extending cavity on said lid at a position radially outwardly of said central panel to receive said bead and to abut said bead in sealed engagement, means connecting an inner end of said cavity defining means to the outer edge of said panel for permitting said inner end to flex and to expand the cavity radially outwardly during application to a container bead, a conical skirt extending downwardly and outwardly from a lower edge of said cavity defining means and terminating in a free end having a diameter larger than the diameter of said bead.

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an upper portion of said skirt and the lower edge of said cavity defining means forming a waist having a diameter less than the outer diameter of the container head, a series of circumferentially spaced flutes interrupting said waist, said flutes having a decreasing depth from said waist toward said free end of said conical skirt, and surfaces of decreasing circumferential extent in the upward direction on portions of said skirt between said flutes acting as lands for camming engagement with the container head when the lid is forced onto a container, said means being located downwardly of said connecting means and radially inwardly of the outermost portion of said cavity thereby defining an inwardly directed access opening into said cavity for the head, said waist being positioned to engage the head and to be forced radially outwardly during movement of said head through said access opening, the outward movement of said waist forcing an upper wall of said cavity defining means to roll outwardly which forces said connecting means upwardly, and said waist returning to a position beneath said head to grip the latter and the radially outer end of said connecting means positioned adjacent the head when said head is projected into said cavity.

12. A lid in accordance with claim 11 in which said flutes have an increasing width in said conical skirt from their lower ends to said waist.

13. A lid in accordance with claim 12 in which said connecting means includes a flexible annular corrugated ring disposed between said central panel and said cavity defining means.

14. A lid in accordance with claim 11 in which said lands are generally flat and generally trapezoidal in shape.

15. A lid in accordance with claim 11 in which said waist extends inward to about one-half the width of said cavity and the skirt extends downward at an angle of less than about 31° to the vertical plane.

16. A lid for gripping and sealing engagement with a container having a head about an upper edge thereof, said lid comprising a central panel, a cavity defining wall extending circumferentially on said lid at a position radi-

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ally outwardly of said central panel to receive said head therein, a conical skirt extending downward and outward from the lower edge of said cavity defining means and terminating in a free end having a diameter larger than the diameter of said head, said conical skirt joining a lower and radially outwardly end of said cavity defining wall at a waist located substantially beneath the center of said cavity to grip the underside of a head inserted therein, a radially inner end of said cavity wall being spaced upwardly and radially inwardly of said waist, a connecting wall extending circumferentially between said central panel and said inner end of said cavity defining wall, said connecting wall extending upwardly and inwardly from said inner end of said cavity to the outer edge of said central panel, said inner and outer ends of said cavity wall defining an access opening directed inwardly and a series of circumferentially spaced flutes interrupting said waist, and the portions of said skirt between said flutes acting as lands as said head forces said waist outwardly and rolls the upper wall portion of said cavity defining wall in an upward and outward direction as said head is being forced through said access opening and into said cavity, the radially outer end of said connecting means being disposed adjacent said head when said lid is positioned on said container, said lands having a decreasing circumferential extent in an upward direction and said flutes having a decreasing depth from said waist toward said free end of said conical skirt.

17. A lid in accordance with claim 16 formed of one piece and thermoformed from a sheet of plastic of uniform cross-sectional thickness.

18. A lid in accordance with claim 17 in which spaced stacking lugs are formed in said central panel for resting on the central panel of another lid when stacked therewith.

19. A lid in accordance with claim 16 in which said connecting means comprises a flexible annular corrugated ring disposed between said central panel and said cavity defining means.

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UNITED STATES PATENT AND TRADEMARK OFFICE  
**CERTIFICATE OF CORRECTION**

PATENT NO. : Reissue 28797  
DATED : May 4, 1976  
INVENTOR(S) : Clarence T. Brewer

It is certified that error appears in the above-identified patent and that said Letters Patent are hereby corrected as shown below:

Column 2, line 56, "shwon" should be --shown--.

Column 5, line 67, "being tapered on height" should be  
--being tapered in height--.

Column 7, line 11, "means being being located" should be  
--said waist being located--.

Column 7, line 22, "connecting means positioned" should be  
--connecting means being positioned--.

**Signed and Sealed this**

**Thirteenth Day of July 1976**

[SEAL]

*Attest:*

**RUTH C. MASON**  
*Attesting Officer*

**C. MARSHALL DANN**  
*Commissioner of Patents and Trademarks*

# EXHIBIT B

# United States Patent [19] Clements

[11] Patent Number: 4,589,569

[45] Date of Patent: May 20, 1986

## [54] LID FOR DRINKING CUP

[75] Inventor: Jack D. Clements, Ada, Okla.

[73] Assignee: Solo Cup Company, Highland Park, Ill.

[21] Appl. No.: 643,667

[22] Filed: Aug. 22, 1984

## Related U.S. Application Data

[63] Continuation-in-part of Ser. No. 545,076, Oct. 24, 1983, abandoned.

[51] Int. Cl.<sup>4</sup> ..... B65D 41/26; B65D 43/03; B65D 47/06

[52] U.S. Cl. .... 220/380; 206/508; 220/90.2; 220/90.4; 229/7 R

[58] Field of Search ..... 220/90.2, 90.4, 254, 220/280; 229/7 R; 206/508

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Primary Examiner—Allan N. Shoap

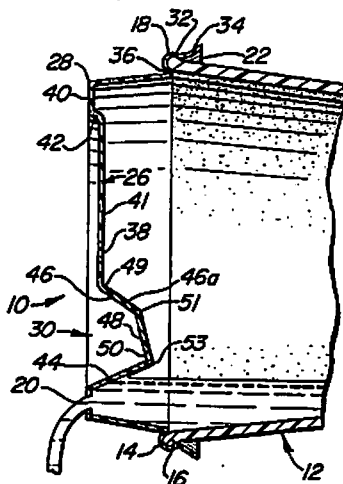
Attorney, Agent, or Firm—Fitch, Even, Tabin &amp; Flannery

[57]

## ABSTRACT

A lid for a drinking cup includes an annular mounting portion for engaging the lip of the cup, an annular side wall extending upwardly from the mounting portion, and a top wall having a drinking opening formed in it. In the preferred embodiment, the top wall of the lid has a recess formed in it adjacent the drinking opening to accommodate the upper lid of the user.

6 Claims, 4 Drawing Figures



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FIG. 1

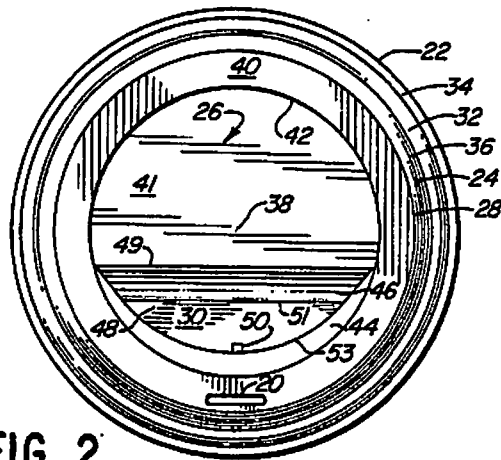
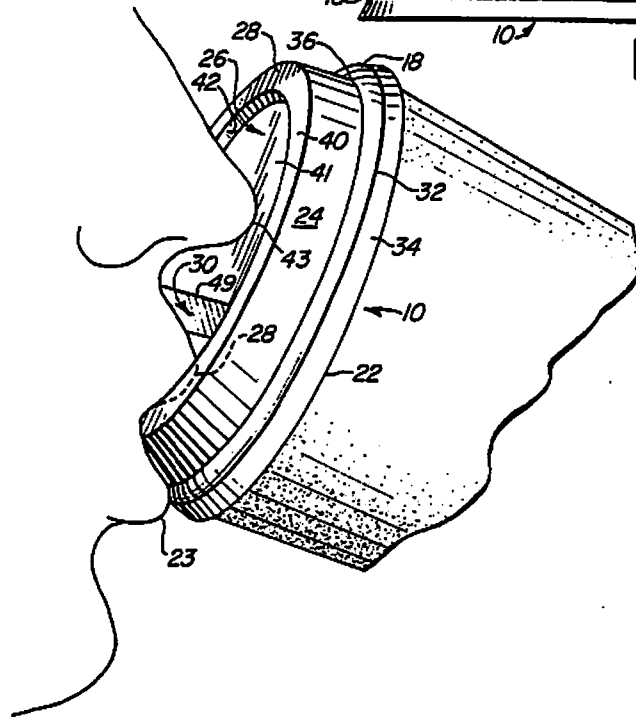


FIG. 2

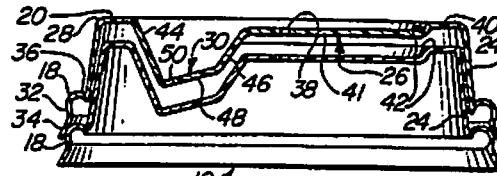


FIG. 4

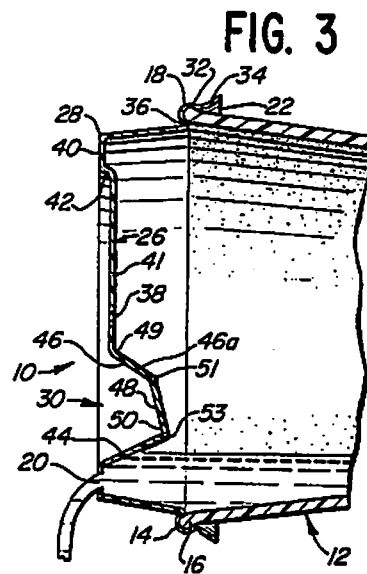


FIG. 3

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**LID FOR DRINKING CUP**

This application is a continuation-in-part of copending application Ser. No. 545,076, filed Oct. 24, 1983 now abandoned

**BACKGROUND OF THE INVENTION**

The present invention relates generally to a lid for use in combination with a drinking cup and more particularly to a lid enabling drinking from the cup without removal of the lid.

It is well known to apply disposable lids to disposable drinking cups for carry-out sale of beverages such as coffee. Many of the lids commonly in use for this purpose must be removed prior to drinking of the beverage to provide access to the beverage. Removal of the lid may be inconvenient, particularly if the user is attempting to hold the cup and remove the lid with one hand. Also, if the user desires to drink the beverage while walking or traveling in a vehicle, removal of the lid may enable the beverage to splash out of the cup should the cup be jarred, or pour out of the cup should the cup be tilted.

Some lids have had score lines or the like formed in them to define a removable portion which may be punched out or folded to provide access to the beverage. One disadvantage of this type of lid is that it may be inconvenient for the user to perform the requisite penetration or folding of the lid, particularly if the user is walking or riding in a vehicle, or has only one hand free.

Some lids have included preformed openings for drinking. However, in some such lids which have been proposed in the past, the position of the opening has been such that drinking through the opening is difficult or uncomfortable due to the way in which the user's mouth engages the lid.

**SUMMARY OF THE INVENTION**

In accordance with the present invention, a lid is provided which is configured to facilitate drinking from the cup through an opening in the lid without spillage and without causing discomfort to the user. The preferred lid includes a mounting portion for gripping the upper rim of the cup, a side wall extending upwardly from the mounting portion, and a top wall having an opening formed therethrough. When drinking from the cup, the mouth of the user may seal against the lid adjacent the opening to prevent spillage. A recess is preferably provided adjacent the opening to accommodate the upper lip of the user. The side wall provides a relatively smooth surface for the lower lip of the user to engage, and enables drinking without the lower lip of the user contacting the lower edge of the lid. A vent opening may be formed in the top wall to enable air flow into the cup to facilitate the flow of liquid through the drinking opening. A drain opening may be formed at the bottom of the recess to enable liquid to drain from the recess into the cup.

Accordingly, it is a general object of the present invention to provide a lid for a drinking cup which enables a user to drink from the cup through an opening in the lid comfortably and without spillage.

A more specific object of the present invention is to provide a lid having an opening formed therethrough to enable drinking, and having a recess formed in the lid

adjacent the opening to accommodate the upper lip of one drinking from the cup.

It is an additional object of the present invention to provide a relatively inexpensive drinking cup lid for carry-out beverages.

It is an additional object of the present invention to provide a lid for a drinking cup which is configured so that a plurality of lids may be stacked for compact storage prior to use.

Further object and features of the present invention will become apparent from the following description and the accompanying drawings.

**BRIEF DESCRIPTION OF THE DRAWINGS**

FIG. 1 is a perspective view of a lid in accordance with the present invention, shown in installed position on a cup and illustrating the engagement of the mouth of a user with the lid.

FIG. 2 is a plan view of the lid of FIG. 1.

FIG. 3 is a fragmentary sectional view of the lid and cup of FIG. 1.

FIG. 4 is a sectional elevational view of the lid of FIG. 1, shown in stacked relation with a second lid.

**DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT**

The present invention is generally embodied in a lid 10 for a drinking cup 12. For convenience of description, terms such as "upward", "downward", "horizontal", etc., are used herein, referring to the lid in an orientation as illustrated in FIG. 4. It will be understood that during use the lid 10 normally assumes various different orientations. The lid 10 may be used with cups of various types, and is particularly suitable for use with disposable cups of the type commonly used as carry-out containers for beverages such as coffee and the like. Such cups are commonly made of Styrofoam or paper. As illustrated in FIG. 3, the illustrated cup 12 has a generally circular upper lip or rim 14 (FIG. 3) with a bead 16 formed on it.

The lid 10 provides a cover for the cup 12 which inhibits spillage and reduces heat transfer between the beverage and the surrounding atmosphere, and is secured in place on the cup 12 by an annular mounting portion 18 which engages the rim or lip 14 of the cup. In the preferred embodiment, a preformed opening 20 is provided to enable drinking from the cup 12 without removal of the lid 10. In accordance with another embodiment of the present invention (not illustrated), the lid 10 might have score lines formed in it defining a removable portion to enable a drinking opening to be formed by the user.

In accordance with one feature of the present invention, the drinking opening 20 is positioned so that one may drink from the opening 20 without contacting the bottom edge 22 of the lid 10 with his lower lip 23, which might be uncomfortable. To this end, the lid 10 includes an annular side wall 24 extending upwardly from the mounting portion 18 and a top wall 26 extending across the top of the lid 10 and having a generally circular periphery 28 adjoining the side wall 24, and the drinking opening 20 is adjacent the periphery 28 of the top wall 26. In the illustrated embodiment, the opening 20 is formed through the top wall 26. In accordance with another embodiment (not shown), the opening might be formed in the side wall 24 just below the periphery 28 of the top wall 26.

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In accordance with another feature of the present invention, a recess 30 is formed in the top wall 26 adjacent the drinking opening 20 to accommodate the upper lip 28 of the user. This enables one drinking from the cup to seal his mouth against the lid 10 about the drinking opening 20 to facilitate drinking while walking or traveling in a moving vehicle without spillage.

Turning now to a more detailed description of the present invention, the mounting portion 18 includes a resilient annular gripping portion 32 configured to grip the bead 16 on the lip 14 of the cup 12 and seal thereagainst. To facilitate mounting of the lid 10 on the cup 12 and movement of the gripping portion 32 into gripping engagement with the bead 16, the mounting portion 18 further includes an outwardly flared skirt 34 depending from the gripping portion 32. As the lid 10 is pushed downwardly onto the lip 14 of the cup 12, the skirt 34 aids in centering the lid and in deflecting the gripping portion 32 to an open position to enable it to fit over the bead 16. An annular channel 36 is defined at the juncture of the gripping portion 32 and the bottom of the side wall 24 which enables a small amount of liquid to be retained should such liquid drip down the side wall 24.

To enable the drinking opening 20 to be spaced from the lower edge 22 of the lid 10 by a distance sufficient to enable one to drink through the opening 20 without contacting the lower edge 22 of the lid 10 with his lower lip 23, the side wall 24 extends upwardly from the mounting portion 18 for about 0.5 in. or more. The spacing of the opening 20 from the mounting portion 22 also serves to inhibit accidental splashing of liquid upward through the opening 20, and enables portions of the lid 10 contacted by the user's mouth to remain relatively cool when a hot beverage is contained in the cup. In the illustrated embodiment, the height of the side wall is slightly over 0.5 in. This height provides the advantages described above without requiring the material costs associated with production of the lid to be unacceptably high, and without making the lid so bulky as to be unattractive or inconvenient to handle and store. The side wall 24 is preferably frusto-conical in shape, sloping upward and radially inward from the mounting portion to the top wall 26.

A vent hole 38 is formed near the center of the top wall 26 to enable air to flow into the cup 12 as the user drinks from the cup 12 to facilitate the flow of liquid out of the cup 12 through the drinking opening 20. A flat surface or rim 40 extends about the periphery of the top wall 26 to define a retaining wall 42. Located radially inwardly of the rim 40, and bordered by the rim 40 and the recess 30, is a generally flat portion 41 of the top wall 26 which is generally semicircular in shape. The vent hole 38 in the illustrated embodiment is located in the flat portion 41. The flat portion 41 is preferably capable of supporting a cup 12 so that a plurality of cups having lids 10 thereon may be stacked on top of one another. To this end, the inner diameter of the rim 40 is slightly larger than the bottom diameter of the cup 12, and the flat portion covers more than half of the area enclosed by the rim 40. The retaining wall 42 aids in constraining the bottom of the cup 12 against lateral movement. The retaining wall 42 additionally functions to retain liquid which may seep onto the flat portion 41 through the vent hole 38 to prevent such liquid from dripping down the side wall 24.

The flat portion 41 has a generally D-shaped periphery including an arcuate portion defined by the retain-

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ing wall 42 and a linear portion defined by the recess 30. The arcuate portion preferably defines an arc of greater than 180° so that the flat portion 41 may stably support a cup 12 having a bottom diameter slightly smaller than the inner diameter of the rim 40.

In the illustrated embodiment, the drinking opening 20 is formed in the rim 40. This leaves the flat portion 41 slightly lower than the opening 40, which may decrease interference between the nose 43 of the user and the top wall 26 during drinking, as illustrated in FIG. 1.

To inhibit accidental splashing or spilling of liquid through the drinking opening 20, the drinking opening 20 is relatively small. Herein, the drinking opening 20 is approximately  $\frac{3}{8}$  in. long and  $\frac{3}{16}$  in. wide and is oblong in shape with rounded ends 42.

As noted above, as an alternative to the drinking opening 20, the lid 10 might have score lines formed in it defining a movable portion which a user could penetrate or fold to gain access to the interior of the cup 12. The preformed opening is preferred, however, because it enables one to drink from the cup 12 without having to penetrate or fold any portion of the lid.

The recess 30 to accommodate the upper lip 28 of the user is formed adjacent the drinking opening 20 and radially inwardly thereof. In addition to accommodating the upper lip 28 of one drinking from the cup, the recess 30 may also inhibit splashing of the liquid up through the drinking opening 20.

In the illustrated embodiment, the recess 30 is defined by a curved wall 44 which extends generally downward and slightly radially inward from the rim 40, and a pair of contiguous, generally planar inclined surfaces 46 and 48 intersecting the curved wall 44. A drain opening 50 is formed at the bottom of the recess 30 so that any liquid which runs into the recess 30 from the drinking opening 10 or the vent opening 38 may drain back into the cup 12. The recess 30 preferably has a depth slightly less than the height of the side wall 24. This enables the lid 10 to be placed on a full cup 12 without the lowermost portion of the top wall 26 extending into the liquid in the cup 12.

Referring particularly to FIGS. 2 and 3, the first inclined surface 46 intersects the flat portion 41 of the top wall 26 along line 49 and slopes downward therefrom. The second surface 48 intersects the first surface 46 along line 51 and slopes downward from line 51 toward the drain opening 50, intersecting the curved wall 44 along curve 53. The inclined surfaces 46 and 48 define between them an obtuse dihedral included angle.

The configuration of the recess 30 as described above enables it to accommodate the upper lip of one drinking from the cup 12 without presenting unacceptable difficulties in molding the lid. The slope of the first inclined surface 46 is such that the corresponding portion 46a of the underside of the top wall 26 does not tend to collect liquid when the cup 12 is tilted as illustrated in FIG. 3. Another advantage of the configuration of the recess 30 described above is that it does not interfere with stacking of the lids 10 in nested relation.

The lid 10 is preferably of one piece plastic construction, which enables the lid 10 to be manufactured relatively inexpensively so as to be disposable. The illustrated lid may be manufactured by a thermoforming operation, preferably vacuum forming.

The configuration of the illustrated lid was selected not only to provide the above features, but also to enable manufacture of the lid by vacuum forming. To this end, the upper inclined surface 46 is inclined at an angle

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of approximately 45° with respect to the plane defined by the flat portion 41 of the top wall 26. If this surface were inclined too steeply, vacuum forming might stretch the material too thin at some portions of the upper inclined surface 46.

After the vacuum forming operation has been completed, the openings 20, 38 and 50 may be formed in the lid. The drinking opening 20 is preferably formed with a punch and die. The drain opening 50 and vent opening 38, which are preferably smaller than the drinking opening 20, may be formed simply by puncturing the top wall 26 of the lid 10 with a pointed tool.

The thickness of the material of the lid 10 is selected to provide satisfactory strength while enabling enough flexibility to facilitate gripping engagement of the lip of the cup by the gripping portion of the lid. Also, as noted above, the lid requires a relatively small amount of material, which enables it to be produced economically.

From the foregoing, it will be appreciated that the present invention provides a novel and improved lid 10 for a drinking cup 12. The lid 10 is configured so that a plurality of lids 10 may be stacked in nested relation, as illustrated in FIG. 4, which facilitates storage and use of the lids 10. When a plurality of lids 10 are placed in stacked relation, the mounting portion 18 of each lid 10 rests upon the mounting portion 18 of the lid 10 below it. To prevent the lids 10 from binding together when in stacked relation, the side walls of the respective lids do not contact one another, and the mounting portions are configured so that downward pressure on a stack of lids 10 does not cause the mounting portion 18 of a lid 10 to grip the mounting portion 18 of the lid 10 beneath it.

As best seen in FIG. 3, placement of the drinking opening 20 adjacent the periphery 28 of the top wall 26 enables liquid to be poured from the cup through the drinking opening 20, if desired, so that the cup 12 may be substantially emptied through the drinking opening 20 relatively easily.

The lid 10 described above is particularly suitable for use at a carry-out counter in a restaurant where efficiency is important. An employee can fill a cup 12 with coffee or the like and apply the lid 10 quickly and simply by snapping it onto the cup 12. A consumer may then pick up the cup 12 with one hand and drink from it while walking or riding in a vehicle without removing or penetrating the lid 10.

While a preferred embodiment has been described above and illustrated in the accompanying drawings, there is no intent to limit the scope of the invention to this or any other particular embodiment.

What is claimed is:

1. A lid for a drinking cup, the lid comprising:  
a top wall having a generally circular periphery;  
an annular side wall depending from said top wall about its periphery; and  
an annular mounting portion at the bottom of said side wall for sealingly engaging the lip of the drinking cup;  
said lid having a drinking opening therein adjacent said periphery to enable drinking from the cup without removal of the lid;  
said top wall including a recessed portion for receiving the upper lip of a person drinking from the cup; and  
said recessed portion having a drain opening formed therethrough to permit liquid to drain from said recessed portion into said drinking cup; said drain opening being separate from said drinking opening.

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2. In combination, a drinking cup having a generally circular rim with a bead formed thereon, and a lid cooperative with said drinking cup for mounting thereon, the lid comprising:

an annular mounting portion for gripping the bead to retain said lid on said cup;  
an annular side wall extending upwardly from the mounting portion; and  
a top wall having a drinking opening formed through it; the annular mounting portion comprising a resilient flexible annular gripping portion for gripping said bead and sealing thereagainst, and a depending skirt portion extending downwardly and radially outwardly from said gripping portion to facilitate mounting of said lid on said cup;  
said side wall being generally frustoconical in shape and being sloped upward and radially inward from said mounting portion, said side wall further being of substantially uniform height about its periphery, and said skirt and said mounting portion being configured so that a plurality of said lids may be stacked in nested relation with the skirt portion of each lid above the bottom of the stack engaging the mounting portion of the lid beneath it without contact between the respective side walls of adjacent lids;  
said mounting portion including a portion which slopes downwardly toward said side wall adjacent said side wall to define an annular groove adjacent the bottom of the exterior of said side wall;  
said drinking opening being positioned about 0.5 inches above the rim of the cup when said lid is mounted on said cup;  
said top wall including a recessed portion for accommodating the upper lip of one drinking from the cup; and  
said recessed portion including a curved wall sloping downwardly and radially inwardly adjacent said drinking opening, and a pair of contiguous generally planar inclined surfaces intersecting said curved wall, said surfaces each extending to opposing portions of said curved wall on each side of a diametric line passing through said drinking opening with one of said inclined surfaces being between the other of said inclined surfaces and said curved wall.  
3. A thermoformed plastic lid for a drinking cup, the lid comprising:  
a generally horizontal top wall having a generally circular periphery;  
an annular side wall depending from said top wall about its periphery; and  
an annular mounting portion at the bottom of said side wall for sealingly engaging the lip of the drinking cup;  
said top wall having a drinking opening formed there-through adjacent said periphery, a recess formed therein radially inwardly of said drinking opening for receiving the upper lip of a person drinking from the cup, and a generally horizontal support surface oriented generally parallel to said annular mounting portion;  
said recess being defined by a concave surface sloping downward and radially inward adjacent said drinking opening, a first generally planar surface intersecting said concave surface at an arcuate line of intersection and sloping generally upward therefrom, and a second generally planar surface intersecting said first generally planar surface and sloping upward therefrom.

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4. A lid in accordance with claim 3 wherein said second generally planar surface intersects said generally horizontal support surface at an angle of about 135°.

5. A thermoformed plastic lid for a drinking cup, the lid comprising:

a generally horizontal top wall having a generally circular periphery;

an annular side wall depending from said top wall about its periphery; and

an annular mounting portion at the bottom of said side wall for sealingly engaging the lip of the drinking cup;

said top wall having a drinking opening formed there-through adjacent said periphery, a recess formed therein radially inwardly of said drinking opening for receiving the upper lip of a person drinking from the cup, a generally horizontal support surface oriented

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generally parallel to said annular mounting portion, and a substantially circular peripheral surface which is raised with respect to the generally horizontal support surface to define a retaining wall inwardly of said top wall; said generally horizontal support surface having a generally D-shaped periphery and being partially surrounded by said retaining wall, said retaining wall intersecting said generally horizontal support surface about the arcuate portion of said generally D-shaped periphery a portion of said recess intersecting the straight edge of said generally D-shaped periphery and an opposing portion of said recess being intersected by said retaining wall.

6. A lid in accordance with claim 5 wherein said arcuate portion of said generally D-shaped periphery defines an arc of greater than 180°.

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**UNITED STATES PATENT AND TRADEMARK OFFICE  
CERTIFICATE OF CORRECTION**

**PATENT NO. :** 4,589,569

**DATED :** May 20, 1986

**INVENTOR(S) :** Jack D. Clements

It is certified that error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

In the Abstract, line 7, change "lid" to --lip--.

Column 1, line 6, after "abandoned" insert --.--(period).

Column 8, line 10, after "periphery" insert --,--(comma).

**Signed and Sealed this  
Fourteenth Day of October, 1986**

**[SEAL]**

*Attest:*

**DONALD J. QUIGG**

*Attesting Officer*

*Commissioner of Patents and Trademarks*